

USBR BLACK CANYON DAM COBBLESTONE PARK (PWS 3230068) SOURCE WATER ASSESSMENT OPERATOR REPORT

May 17, 2004



State of Idaho Department of Environmental Quality

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Executive Summary

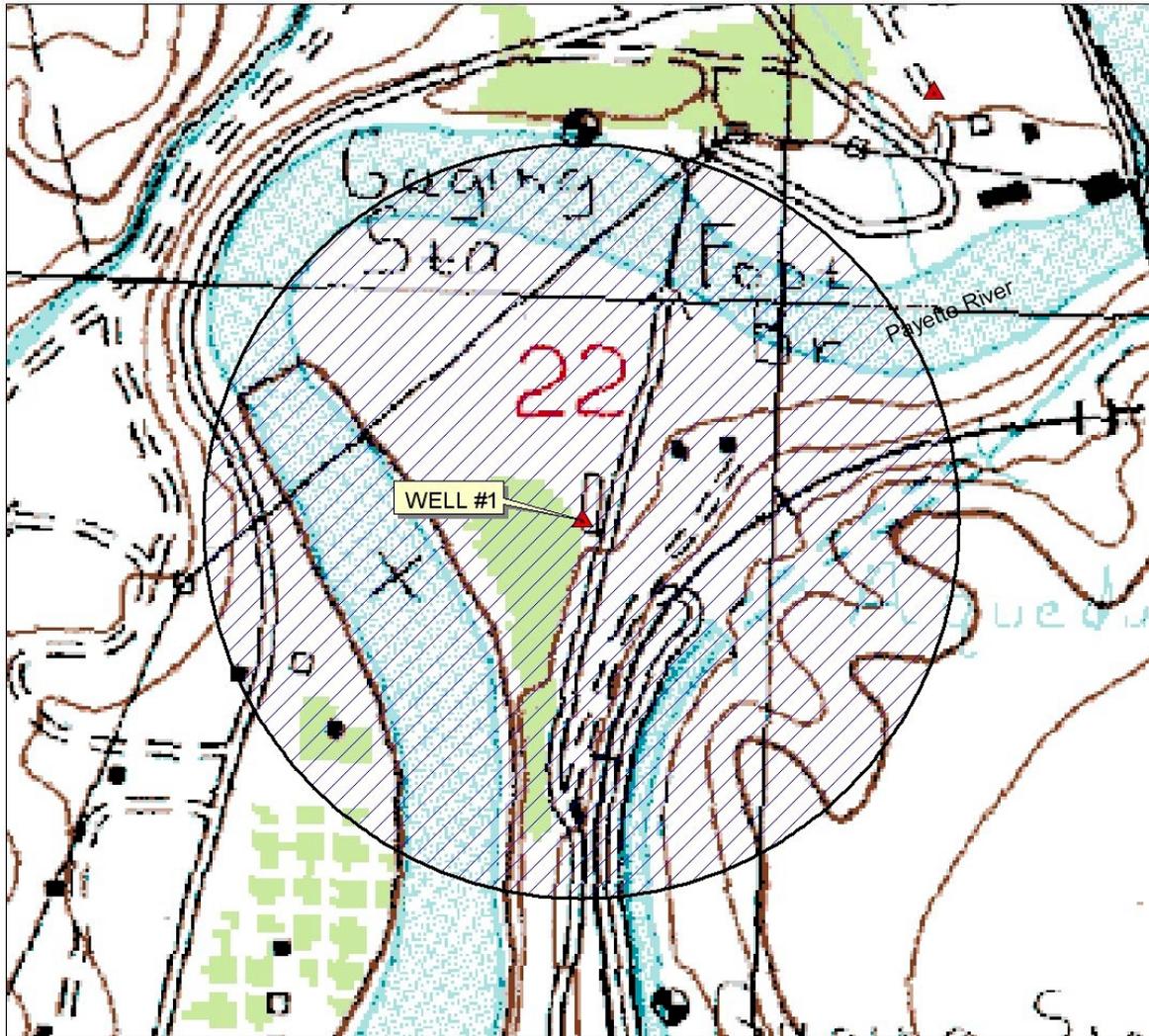
Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality (DEQ) is completing the assessments for all Idaho public drinking water systems. The assessment for the United States Bureau of Reclamation (USBR) Black Canyon Dam Cobblestone Park drinking water source is based on a land use inventory within a 1,000 foot radius of the well source, sensitivity factors associated with the source, and characteristics associated with either your aquifer or watershed in which you live.

This report, Source Water Assessment for USBR Black Canyon Dam Cobblestone Park (PWS # 3230068) describes the public drinking water system, the associated potential contaminant sources located within a 1,000 foot boundary around the drinking water source, and the susceptibility that may be associated with any associated potential contaminants. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the USBR Black Canyon Dam Cobblestone Park water system.**

The USBR Black Canyon Dam Cobblestone Park is located along the Payette River, west of Black Canyon Reservoir in Gem County (see Figure 1). The non-community transient water system has one well that is used April 1 through September 30. Water quality tests conducted for the well during 2001 do not show levels of chemicals above maximum contaminant levels (MCLs). However, there have been detections of nitrite within the sampled well water. The highest nitrite level of water samples taken from the well was 0.007 mg/L in September of 2001. The lowest detection of nitrite from water samples taken from the well was 0.006 mg/L in July of 2001. The nitrite concentrations are both below the EPA MCL of 1 mg/L. There was one repeat detection of bacteria within the distribution system on April 16, 1996.

The final susceptibility ranking for the well is high for inorganic chemicals (IOC) and microbial contaminants and moderate for volatile organic chemicals (VOC) and synthetic organic chemicals (SOC). A copy of the susceptibility analysis for the USBR Black Canyon Dam Cobblestone Park well along with a map showing potential contaminant sources are included with this summary. Information regarding the potential contaminants within the 1,000-foot boundary have been summarized and included in Table 1.

Figure 2. USBR Black Canyon Dam Cobblestone Park Delineation Map and Potential Contaminant Source Locations



PWS# 3230068
Well #1

Potential Contamination

The potential contaminant sources identified within the delineated area include roads, a restroom, and the Payette River (see Table 1 and Figure 2). If an accidental spill occurred on the road or in the river IOC constituents (e.g. nitrate), VOC constituents (e.g. petroleum products), SOC constituents (e.g. pesticides), and microbial contaminants (e.g. bacteria) could be added to the ground water. The restroom is a possible source of IOC and microbial contaminants.

Table 1. USBR Black Canyon Dam Cobblestone Park Potential Contaminant Inventory

| Map ID | Source Description | Source of Information | Potential Contaminants ¹ |
|--------|--------------------|-----------------------|-------------------------------------|
| | Restroom | GWUDI | IOC, M |
| | Roads | GIS Map | IOC, VOC, SOC, M |
| | Payette River | GIS Map | IOC, VOC, SOC, M |

¹IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, M= microbial

Susceptibility Analysis

The susceptibility of the drinking water source to contamination was ranked as either high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity or system construction, the land use characteristics, and potentially significant contaminant sources. Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in another category(ies) results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, IOC (e.g. nitrates, arsenic) contaminants, VOC (e.g. petroleum products) contaminants, SOC (e.g. pesticides) contaminants, and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each drinking water source is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement.

The hydrologic sensitivity was rated high for the well. This rating is based upon moderate-to-well drained soil characteristics defined by the Natural Resource Conservation Service. The well log describes the presence of a shale layer with a thickness of 7 feet in the subsurface to provide a low-permeability barrier between possible surface contaminants and the water-producing zone. This is less than the required 50 feet cumulative thickness identified in the SWA Plan (DEQ, 1999) to lower the sensitivity ranking. In addition, the depth to first ground water identified was at 77 feet below ground surface (bgs), less than the 300 feet identified in the SWA Plan (DEQ, 1999) required to achieve a lower score. However, the vadose zone (the area between the ground surface and the saturated portion of the aquifer) is mainly comprised of sand and granite, which lowers the sensitivity rating for the well as identified in the SWA Plan (DEQ, 1999).

The well's system construction score was rated high. The well was drilled in September of 1963 to a depth of 225 feet bgs. The static water level at the time of drilling was 35 feet bgs. The well has a 6-inch diameter casing from the surface to 80 feet bgs into brown sandstone, which is not a confining layer as required by DEQ (1999) to achieve a lower score. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. Standard 3.2.4.1 requires all PWSs to have yield and drawdown tests that last “24 hours or until stabilized drawdown has continued for six hours at 1.5 times” the design pumping rate (IDEQ, 1997). The information available for the USBR Black Canyon Dam Cobblestone Park indicates that the well does not meet this requirement. The top of the production zone is at 80 feet, and is 34 feet below the static water level, less than the required 100 feet identified in the SWA Plan (DEQ, 1999) to lower the system construction rating. According to the 2003 sanitary survey the sanitary seal is in good condition. The well is not located within a 100-year floodplain, however it is not protected from flooding, which increases the well system construction risk rating. The 2003 sanitary survey noted that a sump pump or drain is needed to protect the well from flooding.

The USBR Black Canyon Dam Cobblestone Park well rated moderate (Table 2) for potential contaminant sources and land use for IOCs (e.g., nitrates) and microbial contamination (e.g., total coliform) and low for VOCs (e.g., petroleum products) and SOCs (e.g. pesticides). The roads and Payette River added to the rankings for VOCs and SOCs, while the restroom contributed to the moderate ranking of IOCs and microbial contamination.

The final susceptibility ranking for the well is moderate for VOC and SOC contaminants, and high for IOC and microbial contaminants (see Table 2). Sources within 50 feet of the wellhead gives an automatic high score for the type of contaminant in question. This is the case for the of USBR Black Canyon Dam Cobblestone Park well. The well is located within 50 feet of restrooms, which is a potential source of IOC and microbial contaminants. Therefore, the USBR Black Canyon Dam Cobblestone Park received an automatic high final susceptibility ranking for IOC and microbial contaminants. A copy of the susceptibility analysis for the USBR Black Canyon Dam Cobblestone Park well along with a map showing potential contaminant sources are included with this summary. Information regarding the potential contaminants within the 1,000-foot boundary have been summarized and included in Table 1.

Table 2. Summary of USBR Black Canyon Dam Cobblestone Park Stores Susceptibility Evaluation

| | Susceptibility Scores ¹ | | | | | | | | | |
|------|------------------------------------|------------------------------------|-----|-----|-----------|---------------------|------------------------------|-----|-----|-----------|
| | Hydrologic Sensitivity | Contaminant Inventory ² | | | | System Construction | Final Susceptibility Ranking | | | |
| | | IOC | VOC | SOC | Microbial | | IOC | VOC | SOC | Microbial |
| Well | H | M | L | L | M | H | H(*) | M | M | H(*) |

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

²IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, M= microbial

H(*) = Wells rated high and automatically high due to sources within 50 feet of well

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with

numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

Protection Activities

For the USBR Black Canyon Dam Cobblestone Park water system, drinking water protection activities should focus on evaluating possible sources of contamination such as those identified in this assessment and issues raised in the 2003 sanitary survey. Some of these issues include installing a drain or sump pump to provide adequate drainage, submit a cross connection control program and bacteriological site plan, and install a downturned and screened casing vent that is 18 inches above ground level. To protect the source water, the water system operator may consider installing a locking fence around the wellhead to restrict direct access. During runoff periods, the Payette River should be monitored to prevent surface water from infiltrating the well water. Working with the local soil and conservation district and Gem County will better inform the water system operator of chemicals that may be applied or stored near the drinking water well. The water system operator is also encouraged to develop a drinking water protection plan to document and rank potential contaminant sources, assess protection efforts, and provide education for staff and the public about the drinking water. No chemicals should be stored or applied within 50 feet of the well.

Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

Assistance

A water system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact Pamela Smolczynski in the Idaho Department of Environmental Quality Boise Regional Office at (208) 373-0461.

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, Idaho Rural Water Association, at 208-343-7001 (mlharper@idahoruralwater.com) for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few heads to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of storm water runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory

References Cited

Idaho Department of Environmental Quality, 1999. Source Water Assessment Plan.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

The final scores for the **USBR Black Canyon Dam Cobblestone Park** susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

Public Water System Name: USBR Black Canyon Dam Cobblestone Park
Public Water System Number: 3230068
Well Number: 1
Date: 4/21/2004
Person Conducting Assessment: Jessica Fox

Version 2.1
 5/19/1999

Hydrologic Sensitivity
Worksheet

| | | <u>Value</u> | <u>Comments</u> |
|--|---|--------------|--|
| (1) Do the soils belong to drainage classes in the poorly drained through moderately well drained categories? | <input type="radio"/> Yes <input checked="" type="radio"/> No | 2 | |
| (2) Is the vadose zone composed predominantly of gravel, fractured rock; or is unknown? | <input type="radio"/> Yes <input checked="" type="radio"/> No | 0 | Sand & Quartz (granite) |
| (3) Is the depth to first groundwater greater than 300 feet? | <input type="radio"/> Yes <input checked="" type="radio"/> No | 1 | First encountered water is at 77' (SWL is 35') |
| (4) Is an aquitard present with silt/clay or sedimentary interbeds within basalt with greater than 50 feet cumulative thickness? | <input type="radio"/> Yes <input checked="" type="radio"/> No | 2 | 7' shale |

Hydrologic Sensitivity Score = 5

Final Hydrologic Sensitivity Ranking = High Hydrologic Sensitivity Score (5 to 6 points)

Public Water System Name: USBR Black Canyon Dam Cobblestone Park
 Public Water System Number: 3230068
 Well Number: 1
 Date: 4/21/2004
 Person Conducting Assessment: Jessica Fox

Version 2.1
 5/19/1999

Source Construction Worksheet

Comments

| | | | | |
|--|------------|---|---|---|
| (1) Well Drill Date | Input Date | <input type="text" value="September 9, 1963"/> | | |
| (2) Well Drillers Log Available? | | <input checked="" type="radio"/> Yes <input type="radio"/> No | | If no well log is available answers to (4) and (6) are assumed to be NO and points are added to score. |
| (3) Sanitary Survey Available? If Yes, for what year? | | <input checked="" type="radio"/> Yes <input type="radio"/> No | Year <input type="text" value="2003"/> | If no sanitary survey is available answer to Questions (5) and (8) is assumed to be NO and points are added to score. |
| (4) Are current IDWR well construction standards being met? | | <input type="radio"/> Yes <input checked="" type="radio"/> No | <u>Value</u> 1 | pumping test ran for 1 hour; minimum should have been 4 hours. |
| (5) Is the wellhead and surface seal maintained in good condition? | | <input checked="" type="radio"/> Yes <input type="radio"/> No | 0 | |
| (6) Do the casing and annular seal extend to a low permeability unit? | | <input type="radio"/> Yes <input checked="" type="radio"/> No | 2 | Casing extends into brown sandstone; no annular seal. |
| (7) Is the highest production interval of the well at least 100 feet below the static water level? | | <input type="radio"/> Yes <input checked="" type="radio"/> No | 1 | 34 feet below SWL |
| (8) Is the well located outside the 100 year floodplain and is it protected from surface runoff? | | <input type="radio"/> Yes <input checked="" type="radio"/> No | 1 | Needs sump pump or drain |

Source Construction Score = 5

Final Source Construction Ranking = High Source Construction Score (5 to 6 points)

| | | | | | | | | |
|--|---|--|--|-------------|------------------------------------|------------------|------------------|------------------------|
| | Public Water System Name: | USBR Black Canyon Dam Cobblestone Park | | Version 2.1 | | | | |
| | Public Water System Number: | 3230068 | | 5/19/1999 | | | | |
| | Well Number: | 1 | | | | | | |
| | Date: | 4/21/04 | | | | | | |
| | Person Conducting Assessment: | Jessica Fox | | | | | | |
| Potential Contaminant Source/Land Use Worksheet | | | | | | | | |
| | Land Use/Zone | | | | IOC Score | VOC Score | SOC Score | Microbial Score |
| | IA | | | | | | | |
| (1) | Land Use (Pick the Predominant Land Type) | Urban/Commercial | ▼ | | 2 | 2 | 2 | 2 |
| (2) | Is Farm Chemical Use High or Unknown? (Answer No if (1) = Urban/Commercial) | <input type="radio"/> Yes | <input checked="" type="radio"/> No | | Stop: Go Directly to Step 3 | | | |
| 2a | Indicate appropriate chemical category | <input type="checkbox"/> IOCs | <input type="checkbox"/> VOCs | | 0 | 0 | 0 | 0 |
| | | <input type="checkbox"/> SOCs | | | | | | |
| (3) | Are IOC, VOC, SOC, Microbial or Radionuclide contaminant sources Present in Zone IA? <u>OR</u> Have SOC/VOC contaminants been detected in the well? <u>OR</u> have IOC contaminants been detected above MCL levels in the well? If Yes, please check the appropriate chemical | <input checked="" type="radio"/> Yes | <input type="radio"/> No | | | | | |
| | | <input checked="" type="checkbox"/> IOCs | <input type="checkbox"/> VOCs | | | | | |
| | | <input type="checkbox"/> SOCs | <input checked="" type="checkbox"/> Microbials | | | | | |
| | | Land Use Subtotal | | | 2 | 2 | 2 | 2 |

Public Water System Name: USBR Black Canyon Dam Cobblestone F Version 2.1
 Public Water System Number: 3230068 5/19/1999
 Well Number: 1
 Date: 4/21/2004
 Person Conducting Assessment: Jessica Fox

SWA Susceptibility Rating Sheet

| Zone IA Susceptibility Rating | Rationale for High Susceptibility in Zone IA |
|---|---|
| <p>Warning: Due to specific conditions found in Zone IA this well has been assigned a High overall susceptibility for:</p> <p><i>This rating is based on: (1)The presence of contaminant sources in Zone IA or (2)The detection of specific SOC/VOC chemicals in the well or (3)The detection of specific IOC chemicals above MCL levels in the well.</i></p> <p><i>Public Water Systems may petition IDEQ to revise susceptibility rating based on elimination of contaminant sources or other site-specific factors.</i></p> | <p>Restroom located within 50' of well</p> |
| <p>IOC Contaminants</p> <p>Microbial Contaminants</p> | |

| Transient Sources | <u>IOC</u> Score | <u>SOC</u> Score | <u>VOC</u> Score |
|--|---------------------|---------------------|---------------------|
| Hydrologic Sensitivity Score = | 5 | 5 | 5 |
| Potential Contaminant Source/Land Use Score X 0.27 = | 3 | 2 | 2 |
| Source Construction Score = | 5 | 5 | 5 |
| Total | 13 | 12 | 12 |
| FINAL WELL RANKING | | | |
| IOC Ranking is High (13 to 18 points) | | | |
| SOC Ranking is Moderate (6 to 12 points) | | | |
| VOC Ranking is Moderate (6 to 12 points) | | | |

Comments

| Microbial Susceptibility Rating | <u>Score</u> |
|---|--------------|
| Hydrologic Sensitivity Score = | 5 |
| Potential Contaminant Source/Land Use Score X 0.375 = | 3 |
| Source Construction Score = | 5 |
| Total | 13 |
| FINAL WELL RANKING | |
| Microbial Ranking is High (13 to 18 points) | |

Comments